

Appl No. 09/706,937
Amdt. dated April 28, 2005
Reply to office action of December 28, 2005

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claim 1 (currently amended): An index for a geographic database containing data that represent geographic features, said index comprising:

a structure that includes three dimensions,

wherein a first dimension of said three dimensions includes latitude boundary information, a second dimension of said three dimensions includes longitude boundary information, said data that represent geographic features indexed by said structure are searchable spatially using a latitude and a longitude,

wherein a third dimension of said three dimensions includes rank information, wherein each of said geographic features have an associated rank information, wherein said rank information has at least two levels, a first level of rank is associated with the most important geographic features and a second level of rank is associated with geographic features of lesser importance, wherein said data that represent geographic features are organized into layers based on a rank associated with the represented features, said data that represent geographic features indexed by said structure are searchable for said rank of the geographic features, wherein said index being stored on a computer readable medium.

Claim 2 (currently amended): An index for a geographic database containing geographic data that represent geographic features, said index comprising:

a structure that includes two spatial dimensions and a non-spatial third dimension,

wherein said structure is a *k*-d-tree index structure comprising a root node, intermediate nodes and leaf nodes,

whereby said geographic data indexed by said structure are searchable spatially using said two spatial dimensions and a latitude and a longitude,

whereby said geographic data indexed by said structure are searchable for a non-spatial property of the indexed geographic data that represent the geographic features using said third dimension, wherein said non-spatial property of the geographic data includes at least one of: a rank associated with the geographic features represented by the geographic data, a granularity of said indexed geographic data, and a scale associated with said indexed geographic data, ~~an~~

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~~expiration date associated with said indexed geographic data, a creation date associated with said indexed geographic data, and a viewing attitude associated with said indexed geographic data~~
wherein said index being stored on a computer readable medium.

Claim 3 (previously presented): The invention of Claim 1 wherein said structure is a k -d-tree index structure comprising a root node, intermediate nodes and leaf nodes, wherein each node is part of a parent-child relationship wherein each parent node includes control information from which one of at least two child nodes associated with the parent node are distinguishable based on a search key.

Claim 4 (original): The invention of Claim 1 or 2 wherein said improved index is homogeneous.

Claim 5 (original): The invention of Claim 1 or 2 wherein said improved index is non-homogeneous.

Claim 6 (original): The invention of Claim 1 or 2 wherein said geographic features are roads.

Claim 7 (canceled).

Claim 8 (previously presented): The invention of Claim 1 or 2 wherein said rank includes both integers and fractional values.

Claim 9 (currently amended): The invention of Claim 14 wherein said ~~non-spatial property~~ selectivity is a granularity of the indexed data.

Claim 10 (currently amended): The invention of Claim 14 wherein said ~~non-spatial property~~ selectivity is a viewing altitude associated with the indexed data.

Claim 11 (currently amended): The invention of Claim 14 wherein said ~~non-spatial property~~ selectivity is a scale associated with the indexed data.

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Claim 12 (currently amended): The invention of Claim 14 wherein said ~~non-spatial property~~ selectivity is an expiration date associated with the indexed data.

Claim 13 (currently amended): The invention of Claim 14 wherein said ~~non-spatial property~~ selectivity is a creation date associated with the indexed data.

Claim 14 (currently amended): An index for data comprising:

a structure that includes a first dimension, a second dimension and a third dimension,

wherein said first dimension includes latitude boundary information,

wherein said second dimension includes longitude boundary information,

whereby said data indexed by said structure are searchable using a latitude and a longitude,

wherein a ~~property~~ selectivity of said indexed data is searchable using said third dimension,

wherein said index being stored on a computer readable medium.

Claim 15 (new): The index of Claim 1 wherein said data that represent geographic features are organized into layers based on said rank associated with the represented features.